STA 3032 Engineering Statistics Fall 2018

Section 4437 (Class No. 20352) Weil 270 MWF 3rd period, 9:35–10:25am
Section 7661 (Class No. 20353) Weim 1064 MWF 5th period, 11:45am–12:35pm

Instructor Deborah Burr, 116C Griffin-Floyd Hall (FLO); Office Hours: After class, or MWF 12:50pm–1:40pm, or by appointment; Email: `burr@stat.ufl.edu` (put "3032" in the subject line); Phone: 273-2973 (Do not leave a message.)

Teaching Assistants

Dina Akimova, FLO 209; Office Hours: Tues 11:45am–1:35pm, `d.akimova@ufl.edu`

Megan Hazlett, FLO 201; Office Hours: Tues 1:55–2:45pm, Thurs 10:40am–11:30am, `meganhazlett@ufl.edu`

Wei Hsieh, FLO 218; Office Hours: Thurs 1:00–3:00pm, `hsiehwei@ufl.edu`

Arek Kesiz-Abnousi, FLO 234; Office Hours: Mon 4:00–6:00pm `arek.kesizabnous@ufl.edu`

Sourav Mukherjee, FLO 202; Office Hours: Thurs 3:00–4:55pm, `souravmukherjee@ufl.edu`

Required Materials

Textbook William Navidi, *Statistics for Engineers and Scientists*, McGraw-Hill, 4th ed. Use of the e-learning platform *Connect* is required. Available through UF's All Access program for $80.00, this includes an electronic version of the text.

Course Notes First installment is available now on Canvas. The course notes are an outline of what I will go over in class and are *not* a substitute for class attendance.

Scientific calculator You need one which will compute the mean and standard deviation automatically. You will use it for tests. A graphing calculator is allowed.

Statistical Software We will use the free statistical computing language `R`; download it in the first week of the semester from `http://www.r-project.org`. Also download Rstudio from `http://www.rstudio.com` (Desktop free license).

Prerequisite MAC 2311 Analytic Geometry and Calculus I

Course Description This course stresses the "big picture" of statistics: It relates standard data summaries such as the mean and standard deviation, to inferential methods for drawing conclusions from the data, via probability. Many common statistical methods are included, as well as others that have proved useful in engineering applications. Students will be introduced to the R programming language, at the "exposure level" (you will run code, recognize what it's doing, and interpret the output). Main topics include descriptive statistics, probability basics, discrete and continuous random variables, the sampling distribution of the mean (Central Limit Theorem), estimation, hypothesis testing, and linear regression.

Main Course Objectives (short list)

1. Be able to produce and interpret appropriate graphs and descriptive statistics for one variable (either categorical or quantitative).
2. Know and be able to apply the basic probability rules, the concepts of expected value and variance for discrete and continuous variables, and the binomial, Poisson, and normal distributions.
3. Know and be able to apply the Central Limit Theorem, which is crucial for inference.
4. Know the meaning of confidence intervals and hypothesis tests.
5. Be able to carry out and interpret one-sample analyses for making inference about population means and proportions.
6. Be able to carry out correlation and regression analyses, for two quantitative variables, and to correctly interpret such analyses.

Grading Your final course grade will depend on your course score based on the following four components with their respective weights:

Homework/Quizzes:		20%
Exam 1:	Friday September 28 (8:20–10:10pm, location TBA)	25%
Exam 2:	Monday October 29 (8:20–10:10pm, location TBA)	27%
Exam 3:	(4437) Wednesday December 12 (12:30pm–2:30pm, Weil 270)	28%
	(7661) Wednesday December 12 (10am –12noon, Weim 1064)	

The assignment of letter grades will be determined as follows (cutoffs will be no stricter than indicated, and may be relaxed): A 93–100; A^- 90–92; B^+ 87–89; B 80–86; B^- 77–79; C^+ 74–76; C 67–73; D 50–66; E < 50

The calculation of your final average will be done outside of Canvas; the formula used by Canvas will not necessarily produce the final average according to the course grading scheme. Information on current UF policy for assigning grade points may be found at `https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx`.

Homework There will be regular homeworks, most done online through Connect. There are two types of Connect assignments: reading comprehension (from the LearnSmart module in Connect), and problem-solving. There are seven reading assignments one for each of Chapters 1 to 7 in the text. It would be best to have begun each of these reading assignments before the corresponding topic is introduced in class. You receive full credit for a LearnSmart reading assignment if you complete it by the due date. The problem-solving assignments are taken from examples and exercises in the textbook, and include computational exercises. Both types of online homework are graded automatically as you do them; the LearnSmart assignments are interactive and individualized. In addition to the online assignments, several

homeworks will be submitted on Canvas and manually graded. You need to earn a total of 220 points for a perfect homework score; there will be at least 250 points possible. (If you earn a total score over 220, this will not count extra.)

Exams There will be three exams; these will be "unit tests." Each exam will consist of multiple-choice questions and one or two written questions. The written problems will be similar to problems solved in lecture, and to homework problems.

Course Policies

Homework Due dates and times for homework are stated on Canvas. No late homework will be accepted.

Exams The exams are closed-book, closed-notes. You may bring one 8.5×11 sheet of notes to each exam. Bring a picture ID, your calculator, pencils and erasers. Makeup exams must be approved before the time of the exam and will generally be given only in case of medical or family emergencies, which must be appropriately documented. More detailed policy for granting a makeup exam may be found in the undergraduate catalog under Attendance Policies (`https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx`). For cases of illness, a doctor's signed note will be required.

Use email only for administrative matters. Email me at the UF email address `burr@stat.ufl.edu`, and put the course number in the subject line. See me or a TA in person for content questions. The ideal time to ask questions is right after class.

All work on quizzes and exams must be entirely your own. Refer to the UF Honor Code at `http://www.dso.ufl.edu/sccr/process/student-conduct-honorcode/`.

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, `www.dso.ufl.edu/drc/`) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

There will be no class on Friday August 31.